

# **Maine Diabetes Health System** **Strategic Plan**

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State of Maine  
Department of Health and Human Services  
Bureau of Health  
Division of Community Health  
Maine Diabetes Prevention and Control Program

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# **The Maine Diabetes Health System Strategic Plan**

John Elias Baldacci, Governor  
State of Maine

John R. Nicholas, Commissioner  
Department of Health and Human Services

Dora Anne Mills, MD, MPH Director  
Bureau of Health

Barbara A. Leonard, MPH, Director  
Division of Community Health

James F. Leonard, MSW, Director  
Diabetes Prevention and Control Program

Lucinda A. Hale, MS, RD, CDE  
Diabetes Care and Education Specialist

Dear Maine Citizens:

Maine is facing a serious health challenge related to diabetes. In 1982, the estimated prevalence of diabetes was 2.4%; about 20,000 people in our state were diagnosed with diabetes. A little over twenty years later the estimated prevalence has more than tripled and as many as one in ten Maine adults have diabetes. Diabetes is a costly disease that can result in serious complications if left uncontrolled. It is the leading cause of end-stage renal disease and non-traumatic lower extremity amputations, as well as a primary cause of preventable blindness. People with diabetes have a two to four times greater risk of developing cardiovascular disease than people without the disease. Despite these frightening statistics, there is good news about diabetes. Many of the complications from diabetes can be avoided through self-management and regularly scheduled diabetes medical care.

The results of two recent studies show that type 2 diabetes, which makes up about 90% of diabetes, could be prevented or delayed in many people through minor lifestyle modifications. This is very important and encouraging news because pre-diabetes, which occurs for several years before developing into type 2 diabetes, is estimated to occur in 40% of people aged 40 to 74. In Maine, using 2000 Census data, about two hundred two thousand people in this age group are estimated to have pre-diabetes. About 11% of those with Pre-Diabetes will develop diabetes in the next three years. Another important factor to recognize is that pre-diabetes raises cardiovascular disease risks by 50%. Heart disease and stroke cause about 65% of deaths among people with diabetes.

In 2003, the Maine Diabetes Control Program changed its name to the Maine Diabetes Prevention and Control Program. The change of our Program's name reflects a change in direction and focus. In the same year, our Program underwent a comprehensive assessment that examined the efforts of the health system to provide diabetes-specific services in our state. We contracted with the Maine Center for Public Health to develop a process to administer a comprehensive assessment, using a tool developed by the CDC. The objective was to identify strengths and weaknesses across the health system in delivery of diabetes-related services, using the ten essential public health services as a framework. The results of the assessment were used in a strategic and performance improvement process.

Completed in early 2004, the results of the assessment (available at [www.maine.gov/dhhs/bohdc/hf/index2.htm](http://www.maine.gov/dhhs/bohdc/hf/index2.htm)) showed much work is needed to organize a statewide diabetes health system and many organizations across the state expressed a willingness and desire to participate in the development of such a system.

Organized strategic approaches are needed to be effective in addressing the growing epidemic of diabetes. In July 2004, a strategic planning process facilitated by the Maine Center for Public Health began. This document describes the context and results of the six-month Diabetes Health System Strategic Planning Process. This endeavor was organized around five topic areas: policy/finance, care delivery, education, health promotion and prevention and data/surveillance. Stakeholders from every facet of the statewide diabetes community, including clinicians, educators, researchers, public health representatives, leaders of voluntary organizations and many others participated. Extensive literature review, background research and the results of the assessment were used to inform three meetings held between July and October. These focused on the creation of long range (five-year) and one-year goals and objectives to create a diabetes health system that is anchored to evidence-based practice and consistent with the mission of public health.

The assessment and strategic planning processes demanded a significant commitment by participants. We are fortunate in this state to have so many organizations and professionals willing to devote time and energy to improve our public health efforts. Included is a list of organizations and professionals that contributed to this process, I want to thank each and every one that participated. Your work will help to improve the many lives affected by diabetes.

Sincerely,

Jim Leonard, MSW  
Program Manager  
Diabetes Prevention and Control Program  
Division of Community Health

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### Maine Diabetes Health System Strategic Planning Committee

Julie Barnes, The Maine Center for Diabetes  
Claudette Bean, Medical Care Development  
Joanne Bean, American Diabetes Association  
John Branscombe, Maine Network for Health  
Carol Cherry, Medicare Medical Review & Appeals  
Jennifer Courtois, Southern Maine Medical Center Visiting Nurses  
Marla Davis, Mid Coast Hospital  
Andrew Finch, BOH, Healthy Maine Partnership  
Carol Freshley, Mid Coast Hospital  
Laura Gordon, Community Health Services  
Linda Gray, Maine Primary Care Association  
Dana Green, St. Joseph Healthcare  
DeEtte Hall, Department of Education  
David Hartley, Muskie School of Public Service  
Nellie Hedstrom, University of Maine Cooperative Extension  
Lori Kaley, Muskie School  
John LaCasse, Medical Care Development  
Marge Lawson, University of Southern Maine  
Lisa Letourneau, MaineHealth  
Kevin Lewis, Maine Primary Care Association  
Jean Lloyd, Maine Department of Health & Human Services, Bureau of Medical Services  
Tina Love, Central Maine Medical Center  
Pamela Bruno MacDonald, Public Health Consultant  
Madeline Martin, Penobscot Nation Health Department  
Doreen McDaniel, Maine Department of Health & Human Services, Bureau of Elder and Adult Services  
Susan McKenney, Anthem Blue Cross Blue Shield  
Katie Meyer, Maine Department of Health & Human Services, Bureau of Health, Chronic Disease Epidemiology  
Katie Michaud, MaineGeneral Specialty Practice  
Daniel Mingle, MaineGeneral Health  
Prashant Mittal, Muskie School of Public Service  
Leslie Molleur, Northeast Health Care Quality Foundation  
Nancy Morris, Maine Health Alliance  
Natalie Morse, MaineGeneral Health  
Ashlan Oberholtzer, Penobscot Nation Health Department  
Chris Sady, Maine Nutrition Network  
Molly Schwenn, Maine Department of Health & Human Services, Bureau of Health, Cancer Registry & Chronic Disease  
Dennis Shubert, Dirigo Health Office  
Deborah Silberstein, Anthem Blue Cross Blue Shield  
Suanne Singer, Maine Health Information Center  
Merle Taylor, Northeast Health Care Quality Foundation  
Deborah Thayer, Muskie School of Public Service  
Meredith Tipton, University of New England  
Laura Vittorioso, The Iris Network  
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Lucinda Hale, Diabetes Prevention and Control Program

Jim Leonard, Program Director, Diabetes Prevention and Control Program

Linda Morgan, Administrative Assistant, Diabetes Prevention and Control Program

### **Maine Center for Public Health**

Ann Conway, Maine Center for Public Health

Brenda Joly, Maine Center for Public Health

Dani Kallian, Maine Center for Public Health

Karen O'Rourke, Maine Center for Public Health

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## Executive Summary

Diabetes has a significant social and economic impact on the state of Maine:

- As many as 1 out of every 10 Maine adults may have diabetes.
- The risk of cardiovascular disease (CVD) and stroke are 2 to 4 times greater in people with diabetes and;
- Diabetes-related hospitalizations are on the rise as are deaths attributed to the disease.
- Diabetes increases medical costs by a factor of 2.4<sup>1</sup> over people without diabetes.

It is a common, complex, and costly chronic condition that is increasing at an alarming rate, both here in Maine and around the globe. Associated with diabetes are enormous human and economic costs, which impact both individuals and our entire health system<sup>2</sup>.

There is promising research showing that type-2 diabetes, which makes up about 90% of all cases of diabetes, can be prevented or delayed in many people with only modest lifestyle changes<sup>3</sup>. Risk factors for developing type 2 diabetes (obesity and inactivity) are the same risk factors for cardiovascular disease, certain cancers, and other chronic diseases. To significantly reduce the impact of diabetes on Maine's residents requires a comprehensive approach to prevent the development of the disease and a health care system that provides care consistent with the Care Model will.

In conjunction with numerous stakeholders that are investing in the future health of Maine's population, the Maine Diabetes Prevention and Control Program recently convened its many partners to create parameters for a comprehensive diabetes health system. The Maine Diabetes Health System Strategic Plan proposes strategies that aim at the reduction of diabetes and its complications through policy development, improved care delivery, enhanced education, optimal health promotion and prevention and the best possible data collection and disease surveillance. In acknowledgment of limited resources and the relationship with other chronic diseases, the plan encourages collaboration at all levels. The partners in the strategic planning process will work to accomplish the recommendations included in the plan through the identified strategies, while working towards the greater goal of addressing the cross-cutting nature of chronic disease prevention and health promotion.

The Maine Diabetes Health System Strategic Plan provides a framework to guide the prevention and control efforts occurring throughout the state. Ideally, this plan will serve as a foundation to unify the efforts of all Maine organizations and providers involved in diabetes care and prevention. In addition, the strategies should move us further towards the goal of a more resourceful and efficient public health system. The result will be an improved quality of life for all Mainers.

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<sup>1</sup> Economic Costs to Diabetes in the U.S. in 2002. *Diabetes Care*, 2003, 26 (3), March, 2003.

<sup>2</sup> Ibid

<sup>3</sup> Diabetes Prevention Program. *Diabetes Care* 2000, Nov; 23(11): 1619-29.

# MAINE DIABETES HEALTH SYSTEM

## VISION STATEMENT:

**Maine enjoys the best diabetes health in the nation  
as the result of our work in diabetes  
prevention and management.**

## MISSION STATEMENT:

**Our Maine diabetes health system integrates state, regional,  
and local primary care, specialty care, community efforts,  
and policy concerning diabetes to achieve a healthy  
population.**

# MAINE DIABETES HEALTH SYSTEM

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## Recommendations and Strategies

### **POLICY/FINANCE**

- Develop statewide Diabetes Advisory Group
- Develop communications plan
- Participate in Ambulatory Diabetes Education and Follow-Up (ADEF) Program barriers study and plan development
- Develop diabetes health system workforce
- Begin to develop cross-cutting efforts

### **CARE DELIVERY**

- Advocate for policy changes
- Develop one care management process
- Regionalize care plans
- Create local diabetes market analyses

### **EDUCATION**

- Promote “best practice” standards for education
- Participate in ADEF Program barriers study and plan development
- Identify cross-cutting chronic care resources
- Create education clearinghouse

### **HEALTH PROMOTION AND PREVENTION**

- Expand diabetes primary prevention activities
- Develop an ongoing public awareness campaign that communicates the risks, burden, and response to diabetes and pre-diabetes

## **DATA/SURVEILLANCE**

- **Participate in ADEF Program barriers study and plan development**
- **Create a statewide diabetes registry**
- **Evaluate diabetes surveillance system**
- **Coordinate efforts to define and address geographic disparities in diabetes**
- **Develop data compatibility among different systems**

## **SECTION I – INTRODUCTION**

### **Maine Diabetes Health System Assessment and Strategic Planning**

The state-based diabetes prevention and control program was initially funded in 1977 through the Centers for Disease Control and Prevention (CDC). At that time, Maine's program was one of six state-funded diabetes programs. The program began with a focus on developing a quality diabetes self-management education program. From 1977 through 1982, the Diabetes Control Program, as it was called at the time, worked with educators throughout the state to develop and implement the Ambulatory Diabetes Education and Follow-Up, or ADEF Program. In 1996, Public Law 592 – the legislation that mandates insurance coverage for diabetes supplies and education – was passed, assuring greater access to clinical services for Maine's residents with diabetes.

In the 1990s, the focus of the program shifted from clinical care to improved health systems and disease surveillance. Data collection and analysis to describe diabetes care patterns and outcomes became a priority. Maine's diabetes surveillance system was developed during this period. From 2000 to the present, there has been an increased emphasis on primary prevention and its integration into the diabetes health system. The effort's name was changed in 2003 to reflect this objective, now appropriately called the Maine Diabetes Prevention and Control Program (DPCP). The CDC encourages all states to assess their diabetes health systems, with attention to how preventive techniques are effectively integrated into a comprehensive health care system.

In the fall of 2003, (in line with CDC recommendations), the DPCP engaged the Maine Center for Public Health to conduct a rigorous systems-based assessment of the diabetes health system in the state. An assessment tool based on the National Public Health Performance Standards (NPHPS) was used to identify strengths, limitations, gaps, and needs. All diabetes-related efforts in Maine were considered in the assessment and a broad range of partners were included. The results of this effort were used to coordinate a strategic planning process. Five topic areas were identified: Policy/Finance, Care Delivery, Education, Health Promotion and Prevention, and Data/Surveillance. Stakeholders representing all aspects of the delivery system were present to identify strengths and weaknesses of the current system and to develop short- and long-term objectives for a more comprehensive and successful plan for diabetes care. The recommendations and strategies included in this plan should reduce the burden of diabetes in Maine and prevent future cases from impacting the personal and economic health of all Mainers.

### **Diabetes in Context: Policy**

All strategic planning efforts take place in a particular strategic organizational and political context and our efforts have been no exception. An epidemic of chronic diseases like diabetes – and their associated economic and human costs – is at the forefront of Maine health reform debates. Increasing prevalence of often preventable conditions like cardiovascular disease, diabetes, Chronic Obstructive Pulmonary Disease (COPD), and cancer is much discussed, as are well-intentioned, usually unrelated attempts to address them, in the community, hospital, or primary care setting. Despite successes—such as reduction of youth smoking and teen pregnancy rates—and ambitious plans to better address the ever-growing numbers of Mainers who are either uninsured or underinsured, no

one as yet has been able to effectively link primary, secondary, and tertiary prevention efforts to stem the tide of disease. Complicating matters is Maine's uniqueness as a rural, poor state lacking an integrated primary prevention/public health system. These are some of the contexts in which our strategic planning process has taken place.

Maine health reform efforts offer a unique laboratory to address the chronic disease epidemic in a manner tailored to these realities. In 2003, the Dirigo Health Reform Act, passed by the Maine Legislature, mandated both sweeping health reform activities and the development of an innovative new health insurance product, ultimately named Dirigo Choice. Strategies to promote preventive care have been built into the DirigoChoice product, which is targeted to the small (less than 50 employees) businesses which populate the state's economic landscape. These strategies include individual and employer group ("Healthy ME") incentives both for choosing a Primary Care Physician (PCP), and for prompting the member to work with their PCP to use a health risk assessment (HRA) for identifying health risks and setting self-management goals.

The health reform effort also includes a number of components which are pertinent to chronic disease prevention and control efforts. The "Quality Forum" seeks to examine and introduce best practices in quality for clinicians, health systems, and many other partners around the state. The Health Systems Advisory Council on Health System Development with guidance from the Maine Quality Forum and public input developed a state health to address quality, cost, and implementation of the Care Model (also known as the Chronic Care Model). Key health system stakeholders have attended national policy efforts which help partnerships develop integrated systems to stem the tide of chronic disease.

"Quality Counts", a collaborative initiative, that is closely allied with the Maine Diabetes Cooperative, seeks to help clinicians and health systems to implement the Care Model create care strategies which decrease costs and increase efficiency and quality. Increasingly, there is recognition that effectively working to decrease the incidence of and morbidity and mortality associated with diabetes will take coordinated efforts among all parties involved in its prevention, and control.

Our discussions at all stages of Diabetes Health System strategic planning reflected these complex realities. The great interest in an integrated chronic care council also attests to the energy and vision of the dedicated stakeholders involved in these efforts. Participants recognized the value of collaboration and efficiency by recommending the creation of chronic disease council that would combine existing categorical disease councils.

It is a uniquely challenging time in Maine public health and health care. Like many other states with changing economies, Maine faces many financial challenges in the years ahead. The public health community will be part of these discussions. With the commitment evidenced during our strategic planning process, however, we are confident that our mission will go forward.

### **Diabetes in Context: Maine Demographics**

In this section, we set a context for diabetes—the demographic, socioeconomic, and clinical factors that impact both the incidence and care of this chronic disease. These issues were the subject of much impassioned discussion during our strategic planning process and illustrate the challenges Maine faces as it strives to develop a system of integrated diabetes

prevention and control. These data and the accompanying analyses help to identify needs, set priorities, and project future needs for a given population or service area.

### ***Population Density***

Maine is a large and sparsely populated state. According to the US Census 2000, approximately 55% of the state's 1,274,923 residents live in rural communities, compared with 25% of the US population as a whole. There are 41.3 persons per square mile in the state versus 79.6 persons per square mile nationally. Maine has a total land area of 30,865 square miles, making it the largest state in New England.

Approximately one-third of the state's population lives in one of three large population areas, known as "metropolitan statistical areas" or MSAs. Vast areas of western, northern, and downeast Maine are thinly populated and access to medical services from many areas can be difficult. Resources and supplemental services in rural areas are more limited than those in more densely populated areas and residents who are a considerable distance from health care facilities may be hindered from getting care, due to problems associated with transportation needs, child care, and financial resources. Medical care providers are also more difficult to recruit and retain in rural areas. Small populations limit their practices and there may be long distances from hospitals where they can treat patients and consult with colleagues. According to the Maine Cooperative Health Manpower Resource System, in 2000, there was 1 physician for every 450 Maine residents, fewer than the nationwide ratio of 1 to 375.

### ***Age and Sex***

Table 1 shows the distribution of Maine's population by age breakdown and sex. For males and females, nearly one-third were under 25 years of age, close to 30% were 25-44 years old, and male and female individuals over 65 years of age account for just over 14% of the total population. The risk of developing diabetes increases with age. Populations with greater proportions of older people also have greater proportions of people with diabetes. From 1980 to 2000, the proportion of people in Maine that are 65 and older has increased from 12.5% to 14.5%. From a healthcare perspective, a greater number of older people means a higher demand for health services by people with long histories of living with diabetes. There are likely to be more individuals with complications, requiring extensive services as well as increasing numbers of new cases of diabetes.

Table 1

#### ***Distribution of the General Population in Maine, By Age Group and Sex, 2000***

Age (yrs)	Males, % (n = 620,309)	Females, % (n = 654,614)	Total, % (N = 1,274,923)
<5	5.8	5.2	5.5
5-14	14.5	13.0	13.8
15-24	13.0	12.0	12.5
25-44	29.2	29.0	29.1
45-64	25.2	24.4	24.8
≥65	12.3	16.4	14.3

Source: US Census 2000 Summary File 1

## ***Race and Ethnicity***

According to the Agency for Healthcare Research and Quality, United States Department of Health and Human Services, the burden of diabetes is much greater for minority populations than the white population. Certain minorities also have much higher rates of diabetes-related complications and death – in some cases by as much as 50% more than the population as a whole.

The proportion of Hispanic residents and persons who select race categories other than white in Maine is small – less than 4% in total as compared to almost 18% for the nation as a whole. Table 2 shows the percent distribution of the population by race/ethnicity and sex according to the 2000 Census. The greatest proportion of the population consists of whites (about 97%). Other races account for less than 1% per race category. Hispanic residents make up 0.7% of Maine's population. Persons reporting two or more races account for 1% of the total population.

Table 2

### ***Percentage Distribution of the Population in Maine, By Race/Ethnicity for Each Sex, 2000***

<b>Race/Ethnicity</b>	<b>Males, % (n = 620,309)</b>	<b>Females, % (n = 654,614)</b>	<b>Total, % (N = 1,274,923)</b>
Hispanic	0.8	0.7	0.7
Not Hispanic, of 1 race:			
White	96.9	97.0	96.9
Black	0.6	0.4	0.5
American Indian or Alaskan Native	0.6	0.6	0.6
Asian	0.6	0.8	0.7
Native Hawaiian or other Pacific Islander	<.1	<.1	<.1
Some other race	0.2	0.2	0.2
Not Hispanic, of ≥ 2 races	1.0	1.0	1.0

Source: US Census 2000 Summary File 1

While there is geographic variability in the proportion of people of color in Maine's cities and counties, there are few identifiable areas of high minority population concentration. Cumberland County, the largest county in Maine's southern region, has a more diverse racial population than any other Maine county. The white, non-Hispanic population still greatly exceeds other race categories, however. In the northern region, Washington County has an American Indian/Alaskan Native population of 4.4%, the highest in the state. According to the National Institutes of Health, roughly 15% of Native Americans in the US have diabetes. There are four model diabetes initiatives through the Indian Health Service in Maine, offering a variety of health services and with varying registry capabilities for data collection and outcome evaluation. Of interest is that among the five tribes of Native Americans in Maine, fewer than 30% live on the state's reservations.

Year 2000 Census figures show that foreign-born persons account for 2.9% of Maine's population (11.1% of the US population as a whole is foreign-born). Cultural and language

issues are critical for this population. Nearly 8% of Maine residents over 5 years of age report speaking a language other than English in the home (this figure is 11.1% for the nation as a whole). The International Clinic at Maine Medical Center sees about 300 refugees, both children and adults, each year. Many have lingering medical problems that may have never been addressed by a medical professional. The clinic manages interpretive and cross-cultural services to a large variety of patients from diverse language and cultural backgrounds.

Maine has a relatively high proportion of Franco-Americans. Data from the 2001 US Census Supplementary Survey indicate that French and French-Canadian ancestry represents 21% of all ancestries reported by Maine residents, compared to 4% for the nation as a whole (US Census 2000). Some cities (Biddeford and Lewiston, among others) and areas of northern Maine have significantly greater proportions of Franco-American residents. Issues related to culture, socioeconomic status, and religion among Franco-Americans may influence public health prevention strategies.

When considering the effects of diabetes on Maine's population, it is important to consider Maine's experience with peer states, in addition to comparisons made with the nation as a whole. In terms of the state's racial/ethnic composition, Maine is relatively homogeneous. New Hampshire and Vermont – reasonably comparable New England states – also have less racial and ethnic diversity than the national population taken as a whole. According to state data from 2002-2003 estimates, New Hampshire's population is 94% white and Vermont's population is 96% white.<sup>1</sup>

### **Poverty**

According to the US Census, as of 1999, 10.9% of Maine residents were living below the poverty line (US: 12.4%). At the same time, median household income (\$37,240) falls below the reported US median household income (\$41,994). Per capita money income for Maine residents is also well below the US amount (\$19,533 vs. \$21,587). Slightly less than 8% of Maine's families are living below the poverty level, which is less than the US as a whole (9.2%). However, among families with young children headed by women, poverty rates are significantly higher in Maine (54.7%) than for the US (46.4%).

The Kaiser Family Foundation provides more recent poverty data at the state level. Year 2002-2003 data indicate that 15% of Maine's population is living below 100% of the Federal Poverty Level (FPL). This compares with 17% of the nation as a whole living below the FPL. In neighboring New Hampshire, 8% of the state's population is living below the FPL and in Vermont the figure is 12%.

Table 3

**Percentage of the Population in Maine below Poverty, 1999  
By Region and Selected County**

Region * and Selected County	Persons Below Poverty Level, %
	(Maine, 10.9%)
Northern Region	14.4
• Washington County	19.0
Central Region	11.8
• Somerset County	14.9
Southern Region	8.0
• Cumberland County	7.9

Source: US Census, 1997 model-based estimates

\* Average percent

Regional economic disparity is a very real problem within the state and an important consideration for diabetes health system resource planning. Table 3 shows the percentage of individuals below poverty for Maine's three regions – northern, central, and southern Maine. Counties with significantly more or fewer residents below poverty than the statewide figures are highlighted. The northern region of Maine has the highest percentage of persons below the poverty level at 14.4%. This is 3.5% higher than the statewide figure. Washington County in northern Maine has the highest number of people living below poverty level in the state. The southern counties have the least number of individuals living below poverty level while the central region is just slightly above the statewide amount. Coastal communities have experienced faster population and economic growth than the central counties and the rim counties – the northern counties bordering Canada. In 1999, Maine ranked 38<sup>th</sup> of 51 states in per capita personal income (86 percent of the national average).

The Maine State Planning Office (MSPO) has analyzed a number of economic trends between counties. Table 4 shows the gap between the best- and worst-off counties in Maine on a range of economic indicators. While many stakeholders in Maine debate the existence of "The Two Maine's," in considering diabetes prevention and control, it is vital to understand these regional differences and take them into account when strategizing.

Table 4

***Regional Disparity between the Best-off and Worst-off Counties in Maine***

Measures	Year	Best-off	Worst-off	Maine Average
Poverty Rate (%)	1995	8.7	20.7	12.3
Per Capita Income (\$)	1997	28,044	16,173	21,937
Dependence on Transfer Payments (%)	1997	15.4	33.5	20.6
Median Household Income (\$)	1998	40,377	22,467	31,952
Percent of Households with Income <\$20,000	1998	22.5	44.5	29.9
Unemployment Rate (%)	1998	2.4	9.4	4.4
Employment Growth (1990-98) (%)	1998	25.2	-6.2	3.4
Labor Force Participation Rate (%)	1998	56.8	42.9	52.3
Population Growth (1990-98) (%)	1998	10.4	-12.5	1.3

Source: Maine State Planning Office

***Educational Attainment***

Table 5 considers Maine's 2000 population of individuals 25 years of age and older with a high school diploma or higher or bachelor's degree or higher. The northern region of the state has the lowest overall percentage of individuals in each educational attainment category. At the county level, Somerset County in the central region of Maine has the lowest percentage of residents with a bachelor's degree or higher (11.8%). The southern region has the largest percentage of individuals in both educational attainment categories and includes the county with the highest overall percentages for both high school diploma and higher and bachelor's degree and higher. The numbers for Cumberland County are substantially higher than for the rest of the state. Educational attainment is closely associated with income, job status, and incidence of chronic disease throughout the lifespan.

Table 5

**Percentage of Maine Population 25 Years and Older, with High School Diploma or Higher or with Bachelor's Degree or Higher, 2000  
By Region and Selected County**

Region * and Selected County	High School Diploma or Higher, %	Bachelor's Degree or Higher, %
	(Maine, 85.4%)	(Maine, 22.9%)
Northern Region	82.1	18.0
• Aroostook County	76.9	14.6
Central Region	84.6	20.4
• Somerset County	80.8	11.8
Southern Region	88.3	28.5
• Cumberland County	90.1	34.2

Source: US Census 2000 Supplementary Survey

\*Average percent

### **Health Insurance Coverage**

Lack of insurance and underinsurance is an extremely serious issue in Maine. Costs of health care insurance across the US have risen to record levels in recent years. Maine's Year 2000 Blue Ribbon Commission on Health Care found that health care premiums rose from \$2,773 in 1994 to \$3,438 in 1999, and would likely increase to \$4,590 in 2004 and \$5,934 in 2009. There are an increasing number of persons who do not purchase health insurance, either because policies are too expensive or they are unavailable. Affordable and available health care insurance is critical to the treatment and prevention of any disease, but especially for a chronic and expensive disease such as diabetes. Financial barriers often result in delayed care, increasing the likelihood of more costly medical intervention and affecting best possible treatment outcome. Consequently, health insurance coverage is an important indicator for access to preventive care and health services and helps describe the diabetes health care system. Table 6 provides a breakdown of insurance status for Maine's population as a whole as well as for adults aged 19 to 64. Comparisons with US insurance status figures are included.

Table 6

**Population Distribution by Insurance Status**  
**Maine, 2002-2003**  
**US, 2003**

Insurance Status	Maine All Age Groups, % (N = 1,272,010)	US All Age Groups, % (N = 287,368,410)	Maine Adults 19-64, % (n = 779,590)	US Adults 19-64, % (n = 175,111,560)
Employer	51	54	63	64
Individual	5	5	6	6
Medicaid	18	13	14	8
Medicare	15	12	2	2
Uninsured	11	16	15	20

Source: Urban Institute and Kaiser Commission on Medicaid and the Uninsured estimates based on pooled March 2003 and 2004 Current Population Surveys. Total US numbers are based on March 2004 estimates.

The percentage of uninsured individuals in Maine is less than the US percentage for both the total population and for adults aged 19 to 64. For both groups, however, the number of individuals covered by Medicaid is significantly higher than the US figure. The percentage of individuals aged 19 to 64 on Medicaid in Maine is close to twice the percentage for the US as a whole.

Additionally, data from a Muskie School of Public Service household survey indicate that many of Maine's uninsured live at or below 300% of the federal poverty line, despite the fact that most work and work full time.<sup>2</sup>

### ***Hospital Discharges by Payer Source for Diabetes***

Hospital discharge data for years 1997-99 were queried by payer source and primary discharge diagnosis to specifically examine individuals with a diabetes diagnosis and compare them with all persons discharged. Diabetes ICD-9 codes 250.00-250.90 were used as diagnosis criteria. The results showed that the distribution of payer sources is relatively equal, with the exception of Medicare, which is consistently higher for persons with diabetes, by at least 11%, than for all diagnoses.

## Section II – DIABETES AND ITS IMPACT

### **What is Diabetes?**

Diabetes is a disease in which the body does not produce or properly use insulin. Insulin is a hormone required to convert sugar, starches, and other food into the energy needed for daily life. After a meal, food is typically broken down into a sugar called glucose and carried throughout the body for energy. Cells require insulin, which is produced in the pancreas, to turn the blood glucose into energy. In people with diabetes, there is a defect in insulin production, insulin utilization, or both. The result is high levels of blood glucose (hyperglycemia) in the blood stream while the cells are left starving. Long-term complications such as kidney failure, blindness, heart disease, and stroke, among other things, can occur. In some cases, there are immediate or acute complications such as hypoglycemia (low blood sugar), hyperglycemia (high blood sugar), diabetic ketoacidosis, or hyperosmolar hyperglycemic state.

### **Major Types of Diabetes**

There are three major types of diabetes:

**Type 1 Diabetes** – Formerly called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes, this disease results from the body's failure to produce insulin, which regulates blood glucose. Individuals with type 1 diabetes must take insulin every day to "unlock" the cells of the body, allowing glucose to enter and fuel them. Diagnosis is usually in children and young adults. It is estimated that 5% to 10% of Americans who are diagnosed with diabetes have type 1 diabetes. Risk factors include autoimmune factors, inherited factors, and environmental triggers (chemicals, viral infections, and stressful situations).<sup>3</sup>

**Type 2 Diabetes** – Formerly called non-insulin dependent diabetes mellitus (NIDDM) or adult-onset diabetes, results from insulin resistance (when the body fails to properly use insulin), combined with relative insulin deficiency. This is the most common type of diabetes, accounting for 90% -95% of all diagnosed cases of diabetes. Onset is usually gradual, with little or no symptoms at first. The majority of individuals with type 2 diabetes are over age 40, however the numbers are increasing among children and young adults. Risk factors include overweight, family history of diabetes, physical inactivity, and race/ethnicity, among others.<sup>3</sup>

**Gestational Diabetes** – This is a form of diabetes that occurs in some pregnant women – about 4% of all pregnant women in the US each year – who have had no prior history of diabetes before pregnancy. This type of diabetes generally requires treatment only during pregnancy and the condition subsides after delivery. About 5% to 10% of women diagnosed with gestational diabetes are found to have type 2 diabetes after pregnancy. An additional 20% to 50% of those who have been diagnosed are likely to develop type 2 diabetes in the next 5-10 years.<sup>3</sup>

Other types of diabetes result from specific genetic conditions (such as maturity-onset diabetes of youth), surgery, drugs, malnutrition, infections, and other illnesses. Such types of diabetes may account for 1% to 5% of all diagnosed cases of diabetes.<sup>3</sup>

**Pre-diabetes** – This is a condition that occurs when a person's blood glucose levels are higher than normal but not high enough for a diagnosis of type 2 diabetes. People with pre-diabetes often do not show symptoms, but are at higher risk for developing type 2 diabetes. They are also at increased risk for cardiovascular disease and strokes. Studies indicate that the condition may be reversible. Risk factors include overweight, sedentary lifestyle, improper diet, and a family history of diabetes, among others. Data indicate that 40% of people aged 40 to 74 have pre-diabetes.<sup>3</sup>

## **The Burden of Diabetes**

### ***Worldwide Prevalence***

Diabetes and its related complications are a threat to populations throughout the world. According to the World Health Organization (WHO), at least 171 million people worldwide have diabetes. This figure is likely to more than double by 2030, to reach 366 million. Chronic diseases such as diabetes, heart disease, cancer, and stroke are a barrier to economic development and a strain on health care delivery systems. While undernutrition continues to be critical concern, particularly in developing countries, many children in all regions of the world have poor eating habits and are not getting enough exercise. The link between obesity and diabetes, as well as other chronic diseases, is well-established. The WHO states that globally, an estimated 10% of school-aged children between 5 and 17 years old are overweight or obese, and the situation is getting worse. The rate of obesity in the US and around the world is on the rise. The US has seen the rate of obesity and overweight among children and adolescents aged 6 to 18 years increase to more than 25% in the 1990s from 15% in the 1970s. Similar increases can be seen in China, Brazil, and throughout the world.

“Overweight and obesity increase the risk of many chronic diseases, including type 2 diabetes, heart disease, stroke, and some cancers. Unless we address the underlying causes of the obesity epidemic it has the potential to overwhelm health systems throughout the world.”

Dr. Le Gales-Camus, WHO Assistant Director-General for Noncommunicable Diseases and Mental Health<sup>4</sup>

### ***National Prevalence***

According to the 2002 national estimates from the American Diabetes Association (ADA), there are 18.2 million people in the US, or 6.3% of the population, who have diabetes. While an estimated 13 million individuals have been diagnosed with diabetes, nearly one third of the people with diabetes (5.2 million people) are unaware that they have the disease. There are an estimated 1.3 million new cases of diabetes per year.

#### ***Quick Facts – National Diabetes Epidemic<sup>3</sup>:***

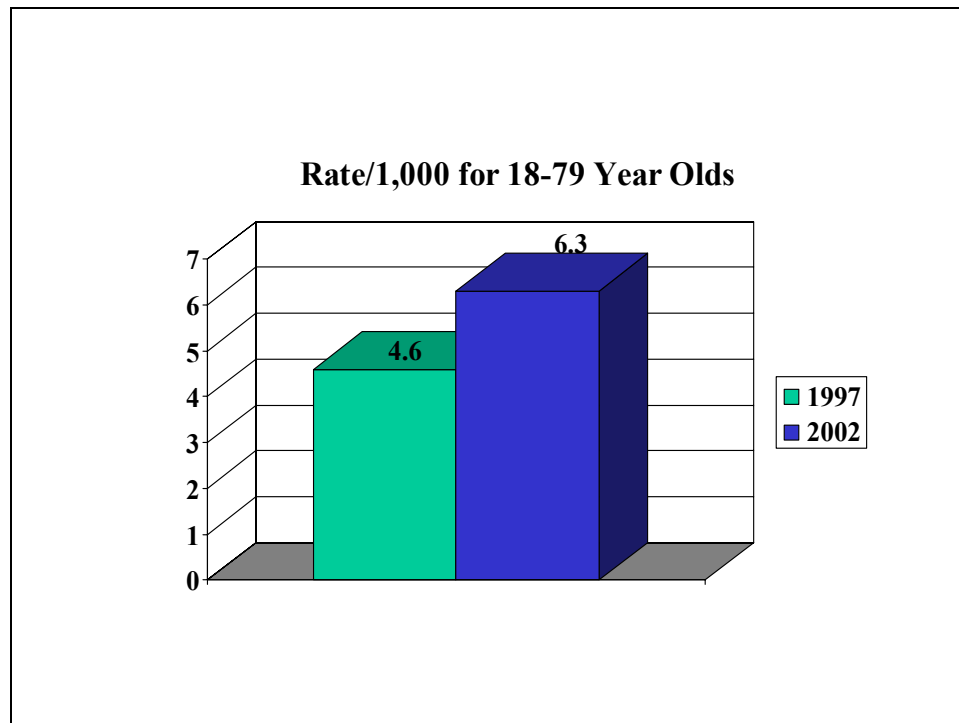
- About 206,000 people under 20 years of age have diabetes
- Approximately 1 in every 400 to 500 children and adolescents has type 1 diabetes
- 18 million people aged 20 years or older have diabetes – 8.7% of this population group
- 8.6 million people aged 60 years or older have diabetes – 18.3% of this population group
- 8.7% of all men and 8.7% of all women aged 20 years or older have diabetes
- Non-Hispanic blacks, Hispanic/Latino Americans, American Indians/Alaska Natives and Asian Americans/Native Hawaiians/Pacific Islanders are disproportionately affected by diabetes
- Diabetes was the 6<sup>th</sup> leading cause of death listed on US death certificates in 2000. Diabetes contributed to thousands of additional deaths. Overall, the risk for death among people with diabetes is about 2 times that of people without diabetes

### ***Diabetes in Maine***

In 1982, the estimated prevalence of diabetes was 2.4%. About 20,000 people in Maine were diagnosed with diabetes. Twenty years later, the estimated prevalence has tripled and well over 60,000 people in Maine are living with diabetes. It is estimated that as many as 1 out of every 10 Maine adults may have diabetes. New cases of diabetes are being detected at greater rates than anticipated. In Maine, there has been a 27% increase in prevalence rates in just 5 years.

Figure 1

***Rates of Diagnosed Diabetes in Maine, 1997-2002***



Source: Maine Bureau of Health, Diabetes Prevention and Control Program

***Quick Facts – Maine Diabetes Epidemic:***

- Our most recent 2004 estimate is that 7.4% of the adult population is diagnosed with diabetes
- For every 2 people diagnosed with diabetes, there is one person that has the disease but has not yet been diagnosed
- Estimates suggest that 40% of people aged 40 to 74 – or 201,834 individuals – have pre-diabetes
- There are approximately 5,825 new cases of diabetes among adults between 18 and 79 years of age each year
- Diabetes is the 6<sup>th</sup> leading cause of death. Data from Maine's mortality records from 1979 through 2000 show a 62% increase in deaths attributed to diabetes. The actual numbers are likely much greater, due to under-reporting

These numbers suggest that 15% to 20% of Maine's adult population have diabetes or pre-diabetes, generating countless hospital visits, pharmaceutical requirements, medical treatment needs and self-management education.

***Economic Burden – National***

Diabetes has a significant impact on our nation's economy. According to a recent study by the American Diabetes Association (ADA), the annual cost of diabetes in medical expenditures and lost productivity climbed from \$98 billion in 1997 to \$132 billion in 2002. The direct medical costs of diabetes have more than doubled in that time. Lower quality of

life, higher absenteeism and increased risk of premature death are potential consequences of living with diabetes. The economic impact includes lower productivity as well as direct and indirect expenditures for illness and disability.

The ADA study also found:

- Direct medical expenditures of \$91.8 billion included \$23.2 billion for diabetes care, \$24.6 billion for chronic diabetes-related complications and \$44.1 billion for excess prevalence of general medical conditions
- Indirect costs resulting from lost workdays, restricted activity days, mortality and permanent disabilities due to diabetes totaled \$39.8 billion
- Cardiovascular disease is the most costly complication of diabetes, accounting for more than \$17.6 billion of the \$91.8 billion annual direct medical costs for diabetes in 2002

### ***Economic Burden – Maine***

Mirroring national and global trends, health care spending in Maine is on the rise. In 1998, it was estimated that health care spending accounted for \$5 billion or 15.5% of the gross state product (GSP). By 2004, it is estimated that spending will increase to \$7.7 billion, or 17.9% of the GSP.

- There has been a 26% increase in the average total charges for diabetes-related hospitalizations in the past five years (1998-2002)
- Diabetes-related hospitalizations have increased steadily from 1996 through 2002
- The estimated direct and indirect health care costs for diabetes in Maine are \$600 million yearly
- MaineCare payments for members with diabetes in 2002 were \$178.4million, representing 15% of total costs for *all* MaineCare members, with an average payment per member with diabetes per month of \$1,447 compared to \$480 for those without diabetes<sup>5</sup>

Increased spending does not necessarily equate with increased access to health services and optimal health. More Mainers smoke, are at risk of heart disease and stroke, and live with diabetes than in all other New England states.<sup>6</sup>

### ***Complications of Diabetes – The National Picture***<sup>3</sup>

#### HEART DISEASE AND STROKE

- **Heart disease** is the leading cause of diabetes-related deaths. Adults with diabetes have heart disease death rates about **2 to 4 times higher** than adults without diabetes.
- The risk for **stroke** is **2 to 4 times higher** among people with diabetes. About **65% of deaths** among people with diabetes are due to **heart disease and stroke**.

## HIGH BLOOD PRESSURE

- About **73%** of adults with diabetes have blood pressure greater than or equal to **130/80** millimeters of mercury (mm Hg) or use prescription medications for hypertension.

## BLINDNESS

- Diabetes is the **leading cause of new cases of blindness** among adults 20-74 years old.
- Diabetic retinopathy causes from **12,000 to 24,000** new cases of blindness each year.

## KIDNEY DISEASE

- Diabetes is the **leading cause of treated end-stage renal disease**, accounting for 43% of new cases.
- In 2000, **41,046 people** with diabetes began treatment for **end-stage renal disease**.
- In 2000, a total of **129,183 people** with diabetes underwent **dialysis or kidney transplantation**.

## NERVOUS SYSTEM DISEASE

- About **60% to 70%** of people with diabetes have mild to severe forms of **nervous system damage**. The results of such damage include impaired sensation or pain in the feet or hands, slowed digestion of food in the stomach, carpal tunnel syndrome, and other nerve problems.
- Severe forms of diabetic nerve disease are a major contributing cause of lower-extremity amputations.

## AMPUTATIONS

- More than **60%** of nontraumatic lower-limb amputations in the United States occur among people with diabetes.
- From 2000 to 2001, about 82,000 nontraumatic **lower-limb amputations** were performed each year among people with diabetes.

## DENTAL DISEASE

- Periodontal or gum diseases are more common among people with diabetes than among people without diabetes. Among young adults, those with diabetes are often at **twice the risk** of those without diabetes.
- Almost one-third of people with diabetes have severe periodontal diseases with loss of attachment of the gums to the teeth measuring 5 millimeters or more.

## COMPLICATIONS OF PREGNANCY

- Poorly controlled diabetes before conception and during the first trimester of pregnancy can cause **major birth defects** in 5% to 10% of pregnancies and spontaneous abortions in 15% to 20% of pregnancies.
- Poorly controlled diabetes during the second and third trimesters of pregnancy can result in excessively large babies, posing a risk to the mother and the child.

## OTHER COMPLICATIONS

- Uncontrolled diabetes often leads to biochemical imbalances that can cause acute **life-threatening events**, such as diabetic ketoacidosis and hyperosmolar (nonketotic) coma.
- People with diabetes are **more susceptible to many other illnesses** and, once they acquire these illnesses, often have worse prognoses than people without diabetes. For example, they are more likely to die with pneumonia or influenza than people who do not have diabetes.

## ***Preventive Care Practices***

While there is no known way to prevent type 1 diabetes, research has shown that there are several important factors in preventing or at least delaying type 2 diabetes. Research indicates that lifestyle changes such as:

- eating healthy meals,
- modest weight reduction, and
- exercising moderately

may help prevent type 2 diabetes by up to 60%.

Prevention and health promotion strategies should include weight control, proper nutrition, physical activity/exercise, avoidance of tobacco, and limited alcohol use. Stress management and regular health check-ups to monitor blood pressure and cholesterol contribute to chronic disease prevention. Additionally, Metformin, an oral diabetes medication, has been shown to reduce the risk of diabetes among certain high-risk individuals by about 30%.<sup>7</sup>

## ***Treatment and Self-Management***

### **Preventive Care Techniques**

Quality of life, as well as the direct and indirect costs of medical expenditures related to diabetes illness and disability, is positively impacted by better self-management and clinical prevention practices. According to the CDC, there has been a favorable upward trend over time in most states in the number of adults with diabetes who receive preventive care. The Behavioral Risk Factor Surveillance System (BRFSS), an ongoing state-based telephone survey that provides information on behavioral risk factors for disease and preventive health practices, collects data regarding specific clinical preventive techniques. Respondents were considered to have diabetes if they responded “yes” to the question, “Has a doctor ever told you that you have diabetes?” Responses may be used to help determine the proportion of adults with diabetes who receive preventive care practices.

In terms of diabetes prevalence, Maine has a higher number of diabetes cases than both New Hampshire and Vermont. In 2002, New Hampshire had 5.8 diagnosed cases of diabetes per 100 adults in the state and Vermont had 5.4 cases per 100 adults.<sup>1</sup> For this same year, Maine had 6.6 diagnosed cases of diabetes per 100 adults. The following table considers the prevalence of diabetes-related preventive care practices in Maine as well as in peer states and the US as a whole.

Table 7

**Age-Adjusted Rates of Preventive Care Practices per 100 Adults with Diabetes  
Maine, Peer States, and US  
2002**

Preventive Care Practices	Maine	New Hampshire	Vermont	US
	Age-Adjusted Rates per 100 Adults with Diabetes			
<b>Dilated-Eye Exam in the Last Year</b>	72.6	76.3	70.7	64.2
<b>Daily Self-Monitoring of Blood Glucose</b>	54.5	57.1	51.6	56.5
<b>Foot Exam in the Last Year</b>	76.2	77.9	74.2	66.6
<b>Seeing a Health Professional for Diabetes in the Last Year</b>	81.9	91.4	89.8	89.6
<b>Two or More A1c Tests in the Last Year</b>	69.2	73.4	78.3	68.1
<b>Ever Attending a Diabetes Self-Management Class</b>	56.1	57.1	50.5	55.7
<b>Influenza Vaccination in the Last Year*</b>	57.7	55.9	61.5	42.8
<b>Ever Receiving a Pneumococcal Vaccination*</b>	37.3	42.0	48.9	34.6

Source: Behavioral Risk Factor Surveillance System (BRFSS), Centers for Disease Control and Prevention

\* Where feasible, 3-year averages were used to estimate the prevalence of preventive care practices. Each 3-year estimate is composed of at least 2 years of data. The vaccination questions are included in the survey every other year, so 3-year averages were not used. The vaccination questions reflect 2001 survey data.

### **Diabetes Self-Management – ADEF Program**

All forms of diabetes require a multi-faceted treatment approach. Self-management is a critical component of diabetes preventive care. Over 95% of the responsibility of diabetes lies with the patient. Successful management of diabetes requires specific knowledge, skills, and appropriate attitudes to affect lifelong behavior changes related to diet, physical activity, blood glucose monitoring, and medical care. Maine has developed a successful diabetes self-management education effort – the Ambulatory Diabetes Education and Follow-Up, or the ADEF Program. This year-long intervention is aimed at reducing the burden of diabetes through self-management principles and improved regulation of blood glucose. The Maine DPCP has certified ADEF Program sites since 1980.

The ADEF Program is based on an individualized education plan and is consistent with the National Standards for Diabetes Self-Management Education. Currently, there are 35 sites, representing 97% of Maine's acute care hospitals and two home health agencies. About 2,000 people with diabetes are referred to the Program annually, with over 27,000 people with diabetes referred since its inception. Since 1983, the Program has been a reimbursable service by Blue Cross/Blue Shield (now Anthem) of Maine, Medicaid and Medicare. In 1996, the state legislature passed Public Law 592, requiring all health insurance policies in

Maine to cover the ADEF Program. Maine ADEF Programs are also certified by the ADA Education Recognition Program, which is required for Medicare reimbursement. Maine DPCP measures changes in health outcomes among ADEF Program participants, and has documented significant reductions in A1C values; reductions in illness-related physician visits and emergency room visits and increases in eye care provider and podiatric visits.

“All patients with type 1 or type 2 diabetes mellitus will have an appointment at an ADEF Program diabetes education course after the diagnosis is established.”

A goal set by 6 primary care practices in eastern Maine that are participating in a collaborative focused on improving care to people with diabetes.

### ***Care Model***

Although chronic diseases are among the most common and costly health problems, they are also among the most preventable. Adopting healthy behaviors such as eating nutritious foods, being physically active and avoiding tobacco use can prevent or control the devastating effects of these diseases. The Care Model (also known as the “Chronic Care Model”), a widely accepted approach to chronic disease, is a concept centered on the idea that optimal chronic care is achieved when a prepared, proactive practice team interacts with an informed, activated patient. Partnerships are formed which link community resources with health system interventions. The goal is to deliver care that is safe, effective, timely, patient-centered, efficient and equitable. People with chronic conditions are their own principal caregivers, supported by health care professionals in a prepared practice team that advise patients by providing specific information about health risks and the benefits of change. The model can be applied to a variety of chronic illnesses, health care settings, and target populations.<sup>8</sup>

The Maine ADEF Program is a diabetes self-management program based on National Standards. The program has achieved significant success in reducing complications that develop from mismanaged diabetes. It is a comprehensive program that has been developed over twenty-seven years and is delivered throughout the state using a curriculum developed by the DPCP and Maine diabetes educators. The program consists of assessment, goal-setting, action planning, problem solving and follow-up. These strategies mirror the Care Model design.

As will be delineated in the “Recommendations and Strategies” section of this strategic plan, our partners in the strategic planning sessions extensively reflected on the interplay of chronic disease efforts in their discussions. One of the overriding themes of the process was the need for an organized body which would participate not only in developing statewide diabetes initiatives, but would also help create an entity that could develop cross-cutting efforts to stem the tide of chronic disease in Maine.

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## Section III – THE PLAN

### Policy/Finance

#### ***Introduction:***

The Maine diabetes community has been active in policy development during the past several years, building on a foundation of prior efforts that targeted diabetes care. At the state level, a comprehensive diabetes surveillance system is in place that will help guide planning and policy efforts. Healthy Maine 2010 identifies diabetes objectives and their current status, highlighting the challenges and expectations associated with diabetes health management. Four years ago, the Maine Diabetes Cooperative was established to share information regarding various activities occurring around the state in the area of diabetes. The Cooperative includes major stakeholders in the diabetes health system and meets on a regular basis to address priority concerns.

A Commission to Study Public Health was established following the 2003 legislative session to consider physical activity and nutrition for youth and adults – critical issues for the prevention and management of diabetes. Employers are beginning to address the significant impact that diabetes has on employee productivity and health care costs. A number of Maine employers participate in incentive programs, an increasing movement among both public and private payers. Additionally, the MaineCare program provides incentives to encourage compliance with Public Law 592. At the local level, communities throughout the state are developing plans to address diabetes-related issues and are establishing effective policies.

As we described in our “Policy” section, the state faces numerous policy and financial challenges as more and more Mainers are at risk of and are developing diabetes. A representative body to lead the statewide effort to raise public awareness and advance collaborative efforts is critical to the success of the diabetes health system. Establishing an advisory group/council to oversee initial activities will be a priority during Year One of the strategic plan. It is expected that this group will prioritize activities from those suggested in the strategic plan and that it may focus its efforts on such issues as ADEF Program reimbursement legislation and potential integration of chronic disease prevention and control initiatives.

An effective and accessible health care workforce is also critical to the well-being of all Maine’s citizens. The University of New England (UNE) College of Medicine has recently received a grant from the Maine Health Access Foundation (MeHAF) to develop an integrated workforce plan for the State of Maine. It is expected that Diabetes Health System strategic planning stakeholders will participate in this effort. This involvement may include the development of a workforce plan specific to diabetes to address underserved areas and ensure the delivery of competent, supportive, appropriate and creative health services opportunities throughout the state. Creating an awareness of diabetes-related educational and training opportunities will help to secure the existing health professional workforce and aid in the recruitment of providers to rural and underserved areas. Exploration of the issue of lay educators is also an important strategy.

## Recommendations and Strategies

1. Develop Statewide Diabetes Advisory Group to Raise Public Awareness and Develop, Reinforce, and Promote Prevention Efforts (representatives of all stakeholders participate)
2. Develop communications plan to help align Diabetes Health System activities
3. Participate in ADEF Program barriers study and plan development (with other stakeholders, especially Education and Surveillance/Data workgroups)
4. Develop a Diabetes Health System Workforce
5. Begin to Explore Cross-Cutting Efforts

**Development of an advisory group with a focus on diabetes is long overdue. Not only can the excitement and energy of committed stakeholders inform our plans in communications, education, policy, surveillance and workforce development we can also begin to see ways to formally integrate the many efforts to address chronic disease in Maine.**

## **Care Delivery**

### ***Introduction:***

Maine faces many challenges related to health care delivery. Maine is a large state with significant differences between the southern and northern regions in population density and economic resources. There are also many differences in access and availability of healthcare throughout the state. A number of comprehensive assessments have been conducted to identify the availability and utilization of health care services. These assessments have been conducted locally, through collaboratives and professional organizations, as well as at the state level with ongoing surveys and studies. In response, local-level access projects and collaborative networks have been established to address the needs of Maine's underserved populations. Maine has a network of Federally Qualified and Rural HealthCare Centers throughout the state with representation through its member organization, The Maine Primary Care Association.

There are numerous examples of successful programs that provide education, transportation, and outreach services throughout the state. Many of these programs also ensure that eligible Mainers are taking advantage of MaineCare and accessing available resources in their communities, such as self-management programs, support groups, and assistance services. In line with the Care Model, an increasing number of communities in Maine are developing networks that utilize community and health systems resources to better address the needs of those at risk of diabetes and its complications. Providers, payers, professional organizations and state organizations are working together to assure access to care.

Despite these efforts, barriers to accessing services still prevent optimal diabetes care for a large portion of Maine's population. Assessment activities are not coordinated statewide and limited data and analysis are available at the local level. Often the assessments that are conducted are not specific to diabetes care, limiting knowledge of disease specific barriers and corresponding interventions. Assuring quality of care is a priority for all involved in the diabetes health care system, but there are limitations due to weaknesses in the current policy structure and lack of a statewide coordinated effort to manage chronic disease through an integrated, standardized process.

Payment reform, standardized care management of chronic disease, regionalized care and coordinated market analysis are priority strategies for improving care delivery. Enhancing access to services for patients and ensuring the optimal use of limited resources for providers will be strengthened through the alignment of state and national agendas to improve benefits and develop integrated models of care for chronic disease.

## Recommendations and Strategies

1. Advocate for Policy Changes
2. Develop One Care Management Process
3. Regionalize Care Plans
4. Create Local Diabetes Market Analyses

## Impact Statements

**Our care delivery recommendations will help create a more cost-effective and efficient system. This will be of high quality for providers and will be more understandable to and humane for the patient.**

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**"We are in a time of change, of challenge, and of opportunity. There is need and there is opportunity to improve how we care for our citizens with diabetes. The only thing certain is that if we '...continue to do things the way we have always done them, we will continue to get the results that we have always gotten."**

**--Daniel Mingle, M.D., quoting Paul Batalden**

## **Education**

### ***Introduction:***

Diabetes, like many chronic diseases, requires a great deal of patient knowledge and self-management ability. An educated patient is more able to control the daily effects of diabetes, substantially improving his or her quality of life. The ripple effect is improved clinical outcomes, greater life expectancy, and decreased personal and economic burden. Successful health education initiatives are available statewide. The ADEF Program offers comprehensive, research-based self-management training in multiple community settings. Other models for patient education also exist, such as group visits, web learning and phone interventions. Training and technical assistance for social marketing and other health education strategies are available and insurers are beginning to support strategies designed to improved community and diabetes-related health.

There are, however, gaps in the educational component of the diabetes health care system. Limited coordination exists across the state for health education. Health education efforts are available statewide, but the ADEF Program reaches only about one third of eligible patients. Large numbers of patients are receiving limited and inadequate prevention resources. Few initiatives focus on at-risk or pre-diabetic populations and links to statewide efforts related to nutrition and diabetes are inconsistent, straining resources in an already overburdened system.

A number of educational priorities were identified by stakeholders at our strategic planning meetings. To better address the unmet need for diabetes education, best practices should be promoted on a statewide level, to assure quality and consistency at all levels of professional and community education. Cross-cutting chronic care resources should be identified and potential partners encouraged to work cooperatively to address health education. Reimbursement is often a barrier to services. Stakeholders need to join together to review current reimbursement for diabetes education and supplies and assure adequate coverage for all those in need. A priority identified in the strategic planning process was research to further ascertain the barriers to diabetes education around the state.

## Recommendations and Strategies

1. Promote “Best Practice” Standards for Education
2. Participate in ADEF Program barriers study and plan development (with other stakeholders, especially Policy and Surveillance/Data workgroups)
3. Identify Cross-Cutting Chronic Care Resources
  - Identify community resources and potential partners.
  - Identify role of educators as knowledge brokers of chronic care resources. Disseminate information about this role
  - Participate in efforts to create integrated approaches to chronic disease as appropriate
4. Create Education Clearinghouse
  - Develop a web-based list of statewide educational opportunities
  - Develop centralized reference library

### **Impact Statement**

**“An essential component of the Care Model is self-management training. To achieve the Care Model outcome of an informed, activated patient and prepared practice team, it is imperative that individuals at risk for diabetes, with diabetes or with co-morbid conditions, have access to and receive self-management training. Clinicians, educators and stakeholders with expertise in diabetes, cardiovascular disease, depression, lifestyle change and other issues can collaborate to assist the ‘whole person’ to self-manage, resulting in optimal health.”**

**--Lucinda A. Hale, Maine Diabetes Prevention and Control Program**

## **Health Promotion and Prevention**

### ***Introduction:***

Rising costs in medical services related to diabetes and its complications have served to mobilize national and state efforts around health promotion and prevention activities. Constituency building around diabetes issues is occurring across the state and select areas at the local level have excelled in engaging partners. Employers are increasingly interested in diabetes, due to the economic implications of diabetes and other chronic diseases on the workforce – decreased productivity, lost days and escalating health care costs. Several entities in the state are collaborating in an effort to leverage system-wide resources for partnership mobilization. Electronic communication has facilitated interaction among interested parties, enhancing material dissemination and conserving resources and time.

A strong diabetes community exists in Maine, but very often, the same people are involved in multiple partnerships. Collaboration with other health promotion and prevention efforts aimed at reducing risk associated with a number of chronic diseases is limited. No process is currently in place to routinely engage policy leaders and other stakeholders and often resources at the state level are underutilized. In rural areas, resources are limited and networks to more efficiently address the chronic disease burden, through preventive practices, are underdeveloped.

Expanding diabetes primary prevention activities through increased collaboration will better address the needs of all those who serve to benefit from a more comprehensive health promotion effort. On the state level, priority primary prevention activities need to be incorporated into the State Health Plan and that selected recommendations of the Commission to Study Public Health are supported and implemented. Locally, strategies to address the health promotion needs of Maine's schools, worksites, and communities will be critical to strengthening the diabetes health system and ensuring lifelong health management skills for all Mainers. An ongoing public awareness campaign will share the most up-to-date information regarding risk factors and screening recommendations. Partners representing all stakeholders will work together to develop a diabetes prevention and health promotion message that effectively communicates the risks, burden and preventive techniques relevant to the diabetes and pre-diabetes population.

## Recommendations and Strategies

1. Expand Diabetes Primary Prevention Activities
2. Develop an ongoing public awareness campaign that communicates the risks, burden, and response to diabetes and pre-diabetes.

### **Impact Statement**

**“Diabetes primary prevention strategies will need to involve both population-based, including environmental and policy changes, as well as individual-level interventions. The environmental changes, to increase physical activity and to decrease portion sizes and total caloric intake, must involve every sector of the community...The health system role also needs to include health risk assessments of every individual at every age, to identify those at risk and initiate interventions to change health behaviors as early in life as possible. Providers will also need to become advocates in their community—for the necessary environmental changes in schools, work places and other areas—to support the necessary behavioral changes they see as essential for the patient populations they serve.”**

**--Natalie Morse, MaineGeneral**

## **Data/Surveillance**

### ***Introduction:***

The Maine DPCP maintains a Diabetes Surveillance System, with data sources that include hospital discharge data, mortality data, Maine Behavioral Risk Factor Surveillance System (BRFSS) data, and ADEF Program data. The surveillance system tracks the burden of diabetes within Maine, measures progress toward Healthy Maine 2010 Objectives and guides program development. Analysis of the surveillance system data is disseminated and integrated with national data, allowing for comparisons with national and regional diabetes health care efforts. Additionally, a number of assessments on the availability and utilization of personal health care services have been conducted at the state and local level.

Educational institutions and other research-based organizations are including public health issues on their agendas. Many opportunities exist to share research findings through annual conferences, newsletters, and trainings. The Bureau of Health and other partners are collaborating to leverage resources and focus research activities on the health care system as a whole and on specific chronic diseases that widely affect Maine's population. Providers are increasingly interested in helping to provide data for research and many local databases exist in established collaboratives and practice sites. These data allow for local evaluation and policy development. Data reviews and performance evaluations assure that appropriate interventions are being utilized and help to monitor performance.

There is an increasing need to provide optimal care for the growing population of individuals with diabetes and those at risk of developing diabetes. Quality care that is accessible and cost-effective needs to be evidence-based and driven by reliable data. In order to adequately assess the existing system and develop standards for an improved health services delivery model, limitations in Maine's data collection and surveillance efforts need to be addressed.

As with previous strategies to strengthen Maine's diabetes health system, collaboration is critical. Stakeholders will need to come together to prioritize data and information needs and identify available resources and partners. A surveillance advisory group, perhaps a subset of a larger Diabetes Health System advisory group, should be developed to oversee progress and propose strategies. Initially, review of an ADEF Program barriers study will be a priority activity of the data and surveillance partners. The existing data from the study should be reviewed and analyzed to summarize initial findings and identify additional data needs. Reimbursement issues, referral processes, accessibility and patient-specific needs related to the ADEF Program should all be considered. Study results should be disseminated along with a plan to address identified barriers.

Data integration efforts are occurring throughout the state. The advisory group will work to assure that concerns of the diabetes community are being addressed. Efforts to enhance laboratory results are a primary concern for adequate determination of diabetes incidence. Creating a statewide diabetes registry would provide a more complete picture of the disease in Maine and strengthen policy efforts related to reimbursement, education and service delivery. Improving upon the availability and usefulness of laboratory and claims data would be an important component of the data and surveillance partners.

### Recommendations and Strategies

1. Participate in ADEF Program barriers study and plan development (with other stakeholders, especially Policy and Education workgroups)
2. Work toward attaining clinical lab results in surveillance data
3. Create a Statewide Diabetes Registry
4. Evaluate Current Diabetes Surveillance System
5. Coordinate efforts to define and address geographic disparities in diabetes
6. Develop data compatibility among different systems

### **Impact Statement**

**Development of a better coordinated data system which is consumer and provider friendly will greatly enhance diabetes prevention and control throughout the state. Integration of such a system with other data and surveillance efforts will be crucial to our success.**

## POLICY/FINANCE

Recommendations/Strategies	Partners Involved
<b>1. Develop Statewide Diabetes Advisory Group to Raise Public Awareness and Develop, Reinforce, and Promote Prevention Efforts</b> <ul style="list-style-type: none"> <li>A. Identify stakeholders</li> <li>B. Develop mission and vision, goals, objectives, strategies, and structure</li> <li>C. Identify sponsors and funders</li> <li>D. Collaborate with other organizations</li> <li>E. Explore cross-cutting chronic disease issues</li> <li>F. Determine linkages to State Health Plan</li> <li>G. Track strategic plan progress</li> <li>H. Implement and evaluate</li> </ul>	<ul style="list-style-type: none"> <li>• American Diabetes Association (1A-1H)</li> <li>• MaineGeneral (1A-1H)</li> <li>• MaineGeneral Medical Center (1B, 1D, 1E)</li> <li>• MaineHealth (1D-1G)</li> <li>• Medical Care Development (1A,1B,1D,1E)</li> <li>• St. Joseph Healthcare (1B,1E)</li> <li>• Diabetes Prevention and Control Program (1A-H)</li> </ul>
<b>2. Develop communications plan to help align Diabetes Health System activities</b> <ul style="list-style-type: none"> <li>A. Identify strengths and gaps from assessment</li> <li>B. Create plan that emphasizes system stakeholders</li> <li>C. Implement plan</li> </ul>	<ul style="list-style-type: none"> <li>• MaineGeneral (2A-2B)</li> <li>• Diabetes Prevention and Control Program (2A-C)</li> </ul>
<b>3. Participate in ADEF Program barriers study and plan development (with other stakeholders, especially education and Surveillance/Data workgroups)</b> <ul style="list-style-type: none"> <li>A. Review ADEF Program reimbursement issues in Maine and other states, especially regarding self-management reimbursement</li> <li>B. Request and analyze results from MeHAF/Maine Primary Care Association (MPCA) ADEF Program barriers study</li> <li>C. Determine additional information/data needs (including needs for info regarding referral, issues in non-Federally Qualified Health Center (FQHC) settings, Dirigo benefits, and other reimbursement issues</li> <li>D. Develop and implement quantitative study to obtain information</li> <li>E. Develop and implement focus groups to elicit additional information, especially regarding literacy and accessibility issues</li> <li>F. Analyze results and write report</li> <li>G. Using results, develop plan to address barriers</li> <li>H. Disseminate plan</li> </ul>	<ul style="list-style-type: none"> <li>• MaineGeneral (3B, 3D, 3E, 3G)</li> <li>• MaineHealth (3D, 3E, 3G)</li> <li>• Diabetes Prevention and Control Program (3A-H)</li> </ul>

<p><b>4. Develop Diabetes Health System Workforce</b></p> <p>A. Develop workforce plan specific to diabetes</p> <ul style="list-style-type: none"> <li>• Consider rural shortage issues (i.e., examine lay educator concept for underserved areas and residency training for underserved populations in general)</li> <li>• Look at other states to consider strategies for addressing access to all underserved areas</li> </ul> <p>B. Participate in UNE health workforce planning effort</p> <p>C. For the existing workforce:</p> <ul style="list-style-type: none"> <li>• Create awareness of educational opportunities through marketing</li> <li>• Create training opportunities <ul style="list-style-type: none"> <li>○ Coach(es) visit practice</li> <li>○ Centralized didactic training which is disease- and technique-specific</li> <li>○ Help train new hires</li> <li>○ Explore use of lay educators</li> </ul> </li> <li>• CEU linkage</li> <li>• Annual updates</li> </ul> <p>D. Recruitment:</p> <ul style="list-style-type: none"> <li>• Input to core curriculum Maine health professions training</li> <li>• Training components should include: <ul style="list-style-type: none"> <li>○ IT</li> <li>○ Systems</li> <li>○ Group Visit</li> <li>○ Care Model</li> <li>○ QI</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• MaineGeneral Medical Center (4D)</li> <li>• MaineHealth (4C-4D)</li> <li>• St. Joseph Healthcare (4A-4B)</li> <li>• Webb Management Services/Move More Diabetes/Kennebec Valley Diabetes Care Initiative (4A)</li> <li>• Diabetes Prevention and Control Program (4A-D)</li> </ul>
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## CARE DELIVERY

Recommendations/Strategies	Partners Involved
<b>1. Advocate for Policy Changes</b> A. Encourage payment reform through advocacy to align state and national agendas. Engage health plans, employers, and Maine and national legislators in this process B. In reform process, encourage: <ul style="list-style-type: none"> <li>• Pay for performance (systems)</li> <li>• Standard benefits</li> <li>• Protection of group visit reimbursement</li> <li>• Pay for non-visit care (case management)</li> <li>• Pay for mandates (revenue impact analysis)</li> </ul>	<ul style="list-style-type: none"> <li>• American Diabetes Association (1A-1B)</li> <li>• MaineGeneral Medical Center (1A-1B)</li> <li>• MaineHealth (1A-1B)</li> <li>• Medical Care Development (1B)</li> <li>• Northeast Health Care Quality Foundation (1A-1B)</li> <li>• St. Joseph Healthcare (1A-1B)</li> <li>• Diabetes Prevention and Control Program (1A,B)</li> </ul>
<b>2. Develop One Care Management Process</b> A. Collaborate with other disease management leaders/initiatives to develop integrated chronic disease care management which includes components such as: standardized/evidence-based guidelines, data collection, office support mechanisms, standardized documents, and culturally sensitive patient literature	<ul style="list-style-type: none"> <li>• American Diabetes Association (2A)</li> <li>• MaineGeneral (2A)</li> <li>• MaineGeneral Medical Center (2A)</li> <li>• Medical Care Development (2A)</li> <li>• Northeast Health Care Quality Foundation (2A)</li> <li>• St. Joseph Healthcare (2A)</li> <li>• Diabetes Prevention and Control Program (2A)</li> </ul>
<b>3. Regionalize Care Plans</b> A. Create regionalized care plans by tracking local/regional resources, tests of change, and outcomes measures and results <ul style="list-style-type: none"> <li>• Be aware of local tests of change</li> <li>• Advise and track outcomes</li> </ul> A. Develop standard outcomes measures/feedback B. Create ability to analyze outcomes by: health system, community, practice, and other variables	<ul style="list-style-type: none"> <li>• MaineGeneral (3A-3C)</li> <li>• MaineGeneral Medical Center (3A-3B)</li> <li>• MaineHealth (3A-3C)</li> <li>• Northeast Health Care Quality Foundation (3A-3C)</li> <li>• St. Joseph Healthcare (3A-3C)</li> <li>• Diabetes Prevention and Control Program (3A-C)</li> </ul>
<b>4. Create Local Diabetes Market Analyses</b> A. These should contain: <ul style="list-style-type: none"> <li>• Reports specific to health system, hospital, practice, zip code</li> <li>• Number predicted diabetic</li> <li>• Known diabetic</li> <li>• Gaps in care</li> <li>• Gaps in services</li> <li>• Demographic and co-morbidity projections</li> </ul>	<ul style="list-style-type: none"> <li>• MaineGeneral (4A)</li> <li>• MaineHealth (4A)</li> <li>• Diabetes Prevention and Control Program (4A)</li> </ul>

## EDUCATION

Recommendations/Strategies	Partners Involved
<b>1. Promote “Best Practice” Standards for Education</b> <ul style="list-style-type: none"> <li>A. Promote employment of and referral to Certified Diabetes Educators (CDEs) <ul style="list-style-type: none"> <li>• CDEs used to train or mentor other providers/care givers</li> </ul> </li> <li>B. Provide continuing education on intensive treatment to providers</li> <li>C. Maintain quality and consistency in all levels of professional and community education</li> <li>D. Develop Maine Chapter of American Association of Diabetes Education</li> <li>E. Promote use of lay facilitators for “Living Well with Chronic Disease” Program</li> </ul>	<ul style="list-style-type: none"> <li>• American Diabetes Association (1B, 1C, 1E)</li> <li>• Maine Department of Education (1C)</li> <li>• St. Joseph Healthcare (1A-1E)</li> <li>• Southern Maine Medical Center Visiting Nurses (1C-1E)</li> <li>• Webb Management Services/Move More Diabetes/Kennebec Valley Diabetes Care Initiative (1E)</li> <li>• Diabetes Prevention and Control Program (1A-E)</li> </ul>
<b>2. Participate in ADEF Program barriers study and plan development (with other stakeholders, especially Policy and Surveillance/Data workgroups)</b> <ul style="list-style-type: none"> <li>A. Review reimbursement issues in Maine and other states, especially regarding self-management</li> <li>B. Request and analyze results from MeHAF/MPCA ADEF Program barriers study</li> <li>C. Determine additional information/data needs (including needs for information regarding referral, issues in non-FQHC settings, Dirigo benefits, and other issues)</li> <li>D. Develop and implement quantitative study to obtain information</li> <li>E. Develop and implement focus groups to elicit additional information, especially regarding local best practices, literacy, and accessibility issues</li> <li>F. Analyze results and write report</li> <li>G. Using results, develop plan to address barriers</li> <li>H. Disseminate plan</li> </ul>	<ul style="list-style-type: none"> <li>• American Diabetes Association (2A, 2C, 2E)</li> <li>• MaineGeneral (2B, 2D, 2E, 2G)</li> <li>• Southern Maine Medical Center Visiting Nurses (2A)</li> <li>• Diabetes Prevention and Control Program (2A-H)</li> </ul>
<b>3. Identify Cross-Cutting Chronic Care Resources</b> <ul style="list-style-type: none"> <li>A. Identify community resources and potential partners</li> <li>B. Identify role of educators as knowledge brokers of chronic care resources. Disseminate information about this role</li> <li>C. Participate in efforts to create integrated approaches to chronic disease as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Maine Department of Education (3A)</li> <li>• MaineHealth (3A-3C)</li> <li>• Medical Care Development (3A-3C)</li> <li>• Southern Maine Medical Center Visiting Nurses (3A)</li> <li>• Diabetes Prevention and Control Program (3A-C)</li> </ul>
<b>4. Create Education Clearinghouse</b> <ul style="list-style-type: none"> <li>A. Develop a web-based list of statewide educational opportunities</li> <li>B. Develop centralized reference library</li> </ul>	<ul style="list-style-type: none"> <li>• MaineHealth (4A-4B)</li> <li>• Diabetes Prevention and Control Program (4A,B)</li> </ul>

## HEALTH PROMOTION AND PREVENTION

Recommendations/Strategies	Partners Involved
<p><b>1. Expand Diabetes Primary Prevention Activities</b></p> <ul style="list-style-type: none"> <li>A. Include diabetes prevention and health promotion goals and strategies in State Health Plan</li> <li>B. Develop and implement strategies to increase the “diabetes prevention activities” in schools and communities</li> <li>C. Implement Commission to Study Public Health recommendations</li> <li>D. Increase current primary prevention activities of Cooperative Extension, Healthy Maine Partnerships (HMPs), ADEF Program, and others</li> <li>E. Encourage inclusion of diabetes prevention and control concepts in programs which target cardiovascular disease, nutrition and physical activity, smoking cessation, school health, overweight, and other issues</li> </ul>	<ul style="list-style-type: none"> <li>• American Diabetes Association (1B, 1C, 1E)</li> <li>• Certified Vision Rehabilitation Teacher (1C, 1E)</li> <li>• MaineGeneral (1A-1E)</li> <li>• MaineHealth (1A-1C)</li> <li>• Southern Maine Medical Center Visiting Nurses (1A-1E)</li> <li>• Diabetes Prevention and Control Program (1A-E)</li> </ul>
<p><b>2. Develop an ongoing public awareness campaign that communicates the risks, burden, and response to diabetes and pre-diabetes</b></p> <ul style="list-style-type: none"> <li>A. Develop and implement a media campaign:             <ul style="list-style-type: none"> <li>• Identify up-to-date risk factors</li> <li>• Know the screening recommendations</li> <li>• Quantify the burden both personal and systemic (to state, business, etc.)</li> <li>• Involve people affected by diabetes in developing message</li> <li>• Review/identify campaigns from other states</li> <li>• Educate people about what they can do</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• American Diabetes Association (2A)</li> <li>• Certified Vision Rehabilitation Teacher (2A)</li> <li>• Diabetes Prevention and Control Program (2A)</li> <li>• MaineGeneral (2A)</li> <li>• MaineHealth (2A)</li> <li>• Southern Maine Medical Center Visiting Nurses (2A)</li> </ul>

## DATA/SURVEILLANCE

Recommendations/Strategies	Partners Involved
<p><b>1. Participate in ADEF Program barriers study and plan development (with other stakeholders, especially Policy and Education workgroups)</b></p> <ul style="list-style-type: none"> <li>A. Review reimbursement issues in Maine and other states, especially regarding self-management reimbursement</li> <li>B. Request and analyze results from MeHAF/MPCA ADEF Program barriers study</li> <li>C. Determine additional information/data needs (including needs for information regarding referral, issues in non-FQHC settings, Dirigo benefits, and other issues)</li> <li>D. Develop and implement quantitative study to obtain information</li> <li>E. Develop and implement focus groups to elicit additional information, especially regarding literacy and accessibility issues</li> <li>F. Analyze results and write report</li> <li>G. Using results, develop plan to address barriers</li> <li>H. Disseminate plan</li> </ul>	<ul style="list-style-type: none"> <li>• MaineGeneral (1B, 1D, 1E, 1G)</li> <li>• Diabetes Prevention and Control Program (1A-H)</li> </ul>
<p><b>2. Work toward attaining clinical lab results in surveillance data</b></p> <ul style="list-style-type: none"> <li>A. Improve prevalence estimate</li> <li>B. Advocate for legislation to mandate reporting</li> </ul>	<ul style="list-style-type: none"> <li>• Maine Bureau of Health</li> </ul>
<p><b>3. Create Statewide Diabetes Registry</b></p> <ul style="list-style-type: none"> <li>A. Resolve question of determination without availability of lab results <ul style="list-style-type: none"> <li>• Incidence (diabetes and pre-diabetes) – Is the effort to determine incidence worth it without lab results?</li> </ul> </li> <li>B. Develop proposal and ask for Bureau of Health Medical Director sponsorship. Ask Dirigo Health reform Health Systems Advisory Board to recommend</li> <li>C. Consult the Maine Health Information Center (MHIC), who can provide assistance on the integration of lab results and claims data, regarding HIPPA issues</li> </ul>	<ul style="list-style-type: none"> <li>• MaineGeneral (3A)</li> <li>• MaineHealth (3A)</li> <li>• Maine Bureau of Health</li> <li>• Diabetes Prevention and Control Program (3A-C)</li> </ul>
<p><b>4. Implement Surveillance Evaluation</b></p> <ul style="list-style-type: none"> <li>A. Develop and implement surveillance advisory group (include representatives of local best practices)</li> <li>B. Complete Centers for Disease Control and Prevention (CDC) evaluation of surveillance system</li> <li>C. Participate in appropriate data integration efforts</li> </ul>	<ul style="list-style-type: none"> <li>• Maine Bureau of Health</li> <li>• Diabetes Prevention and Control Program (4A-C)</li> </ul>

<p><b>5. Coordinate efforts to define and address geographic disparities in diabetes</b></p> <p>A. Identify health GIS users across state (VA hospitals and Brunswick Naval Air Station)</p>	<ul style="list-style-type: none"> <li>• Maine Bureau of Health</li> </ul>
<p><b>6. Develop Care Delivery Data Compatibility</b></p> <p>A. Participate in Electronic Medical Record (EMR) standardization</p> <p>B. Advocate for portable population data, reporting and record</p>	<ul style="list-style-type: none"> <li>• MaineGeneral Medical Center (6A-6B)</li> <li>• MaineHealth (6A-6B)</li> <li>• Medical Care Development (6B)</li> <li>• Diabetes Prevention and Control Program (6A,B)</li> <li>• Maine Bureau of Health</li> </ul>

## **Diabetes Health System Advisory Group/Council Proposed Year One Objectives**

1. List of organizational and individual stakeholders committed to participate in the group (by January 2005).
2. A summary of the activities and operating principles of similar organizations in and outside of the state and identification of characteristics of successful councils (by February 2005).
3. A recommended list of activities for the Council to begin their work, directly reflecting priorities of the Strategic Plan (including diabetes-specific goals and interactions with cross-cutting chronic disease issues) (by March 2005).
4. Draft of bylaws and operating principles identified by key collaborators (by April 2005).
  - DPCP
  - Maine Diabetes Cooperative, which includes: DPCP, Bureau of Medical Services (BMS), MaineHealth, MPCA, Medical Care Development (MCD), Anthem, Northeast Health Care Quality Foundation (NHCQF), MaineGeneral
  - Reviewed by stakeholder group
5. Draft annual goals reviewed and approved by stakeholders group. Goals will include exploration of diabetes-specific goals and potential intersections with cross-cutting chronic disease issues (by April 2005).
6. Proposed Council leadership and Board members, including stakeholders from diabetes constituency and those involved in cross-cutting chronic disease issues (by July 2005).
7. Draft sustainability plan and funding commitments (by September 2005).

Council continues to explore formation of cross-cutting chronic disease council per #3 above (by December 2005).